Trend Study 25C-13-03

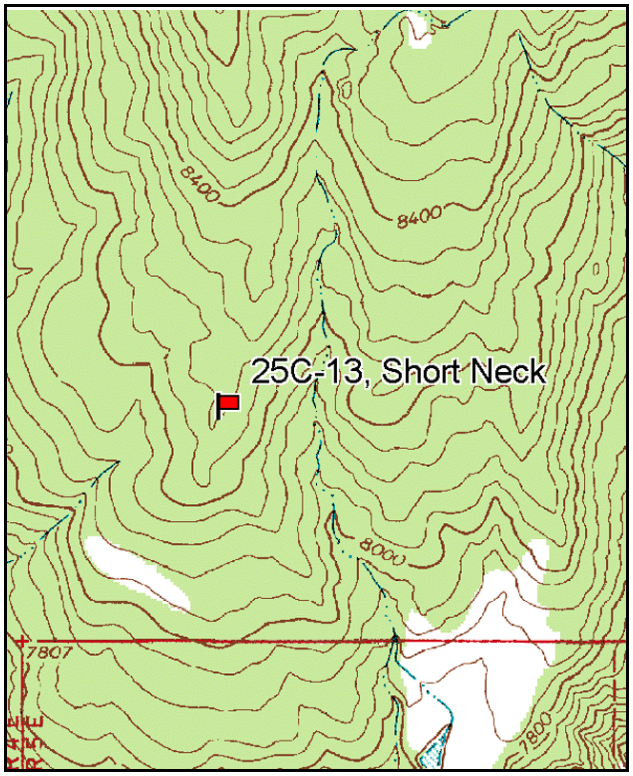
Study site name: Short Neck . Vegetation type: Burn-Mountain Brush .

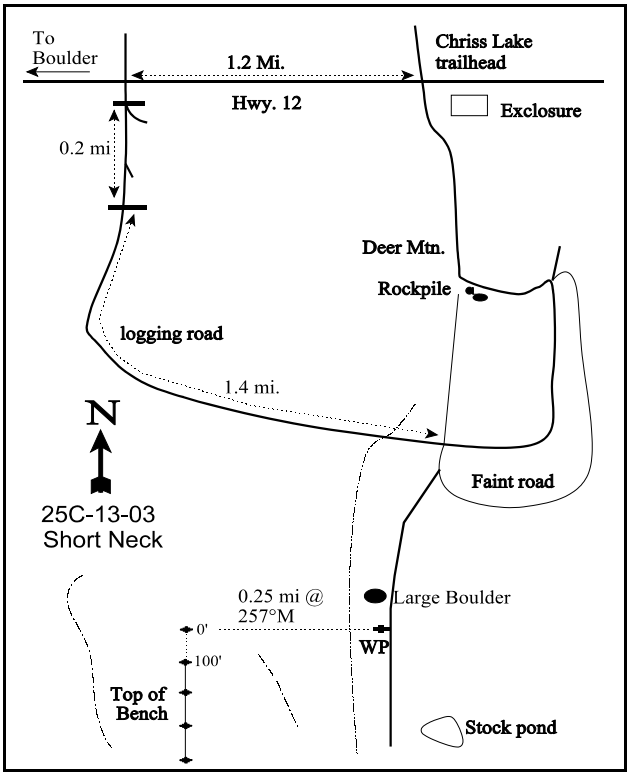
Compass bearing: frequency baseline 180 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (34ft), line 3 (59ft), line4 (71ft).

LOCATION DESCRIPTION

Go south (toward Boulder) from the Chris Lake trailhead (same place to turnoff to Deer Mountain) on SR 12 for 1.2 miles. Turn south onto a logging road. Proceed on main road 0.1 mile. Stay right. Go 0.1 mile to a fork, stay right. From here, stay on main road at all forks. Proceed 0.2 miles to a gate. Continue 1.4 miles to a faint road to the left (south) staying left at all forks. Assuming you can drive to this faint road, you will undoubtedly have to walk from here. Find an old faint road that goes down the ravine just west of the stock pond. Hike down this road one-half mile or so to a place where the plastic water pipeline makes a fork and is marked by an orange steel fencepost. Go west from here to the ridge top on the west side of the ravine. Then hike down the ridge about ~0.25 miles to the study site. The 0-foot baseline stake is by a boulder that is about 3 feet high by 4 feet wide. It is marked by browse tag #7171. There is a 95 foot separation between the 100-foot baseline stake and the 200-foot baseline stake.





Map Name: Boulder Town

Diagrammatic Sketch

Township 32S , Range 5E , Section Unsurveyed

GPS: NAD 27, UTM 12S 4203289 N, 464962 E

DISCUSSION

Short Neck - Trend Study No. 25C-13

The Short Neck trend study is located in an area burned by wildfire in 1971. It is now occupied by a mixed mountain brush community. The study site is located at 8,000 feet on the south aspect of a bench below Deer Mountain and 400 feet above Short Neck Mesa. The transect runs south across the slope, which varies from nearly level at the baseline to 10% at the last post. The area is considered winter range which is heavily used by elk, and to a lesser extent deer. Pellet group data taken on the site in 1998 estimated 52 elk, 14 deer, and 8 cow days use/acre (128 edu/ha, 35 ddu/ha, and 20 cdu/ha). Cattle pats appeared to be from the previous year. Some elk sign appeared to be only a few weeks old while the rest looked to be from winter use. Pellet group data from 2003 estimated 45 elk, 8 deer, and 3 cow days use/acre (111 edu/ha, 20 ddu/ha, and 7 cdu/ha).

Soil on the site is a cobbly, sandy loam which is moderately acidic in reaction (pH 5.7). Large rocks and boulders are commonly found on the surface and throughout the soil profile. Soil depth is variable with an estimated effective rooting depth of almost 10 inches. There is little if any erosion occurring. The rocky nature of the soil is demonstrated by the high percentage of rock and pavement cover which accounts for more than 1/3 of the ground cover. Little bare soil is exposed.

The key browse species include Gambel oak, serviceberry, and bitterbrush. These three species contribute more than 90% of the browse cover. Gambel oak is the least preferred key browse but the most abundant shrub which has provided around 60% of the browse cover since 1994. Cover of oak has averaged around 20% since 1994. Mature plants average between 3 and 4 feet in height. Oak sampled in 1987 had not been hedged, but 22% showed a loss of vigor due to insect damage. Other clumps not sampled did show signs of browsing. The oak was not as prevalent on the original frequency baseline as opposed to the density plots used in 1987 and 1991. Oak densities increased 38% between 1987 and 1991 and appeared to be light to moderately utilized. In 1994, density of oak was estimated with the new, larger sample size at 4,000 stems/acre. Most plants were moderately hedged and in good vigor. Density increased in 1998 and 2003. Most plants appeared only lightly utilized, in good vigor, with low decadence.

Thick patches of serviceberry were also sampled on the site. These clumps, as with the oak, are a mixture of both mature and young plants. Population density has remained relatively stable since 1987 at around 1,500 plants/acre. Serviceberry was heavily hedged in 1987, however, vigor was excellent. Use in 1991 was mostly moderate, but light to moderate in 1994, 1998 and 2003. Reproduction is limited, although the population appears healthy with low decadence and good vigor. Another preferred browse is bitterbrush which appears to have a stable population of 600 to 700 plants/acre. Utilization has been moderate since 1987, with heavier use reported in 1991 and 2003. Vigor has remained good on most plants and percent decadence is low. Several other shrub species are found on the site in small numbers.

Herbaceous vegetation is limited by the thick shrub canopy which made up 66% of the total vegetative cover in 1994, 57% in 1998, and 71% in 2003. The large amount of rock cover also limits herbaceous plants to some extent. An exception is the extremely abundant herbaceous Louisiana sage. This rhizomatous plant accounted for 52% of the total forb cover in 1998 and 37% in 2003. Other common species encountered were redroot eriogonum, penstemon, bastard toadflax, and longleaf phlox. Grasses are diverse with 6 species providing most of the cover. These include blue grama, smooth brome, cheatgrass, a Carex, bottlebrush squirreltail, and needle-and-thread grass. Crested wheatgrass is found in small numbers while intermediate wheatgrass, found on the site in 1991, was not encountered in 1994 or 1998. The annual, cheatgrass, was found on the site in small numbers in 1994 but has since increased significantly with each reading. It was the most abundant grass sampled in 2003, contributing 46% of the total grass cover.

1987 APPARENT TREND ASSESSMENT

Soil at the site is stable with abundant protective ground cover to prevent erosion. Key shrubs include serviceberry, bitterbrush, and Gambel oakbrush. Bitterbrush and serviceberry are highly preferred and showed moderate to heavy use. Both have good age class distributions indicative of a stable population. Gambel oak provides some additional forage, but is used primarily for cover. The herbaceous understory is fairly abundant and diverse. Several perennial grasses and forbs are abundant and provide good forage. Herbaceous production appears to be limited by the high shrub cover of the site.

1991 TREND ASSESSMENT

Ground cover characteristics are similar to 1987 estimates in several categories. However, litter cover decreased from 42% to 35%, and rock cover (rock and pavement) increased from 49% to 53%. There is little bare ground exposed and erosion is not a problem on this site. The trend for soil is considered stable. Looking at the three key browse species, Gambel oak, serviceberry, and antelope bitterbrush; serviceberry decreased in number by 19%, while oak and bitterbrush increased by 38% and 50% respectively. Serviceberry in 1987 made up 33% of the key browse population and in 1991 it only made up 19%. Overall, the trend for key browse would be considered slightly up. Looking at the grasses and forbs, sum of nested frequency is similar between 1987 and 1991 indicating a stable trend.

TREND ASSESSMENT
soil - stable (3)
browse - slightly upward (4)
herbaceous understory - stable (3)

1994 TREND ASSESSMENT

Basic ground cover characteristics are similar to those of 1991 and erosion is not a problem at this time. Trend for soil is stable. The browse trend is slightly up for the moment due to healthy populations, low decadence rates, and improved vigor of the key species since 1991. Some of the population density changes are the result of the larger sample taken in 1994. On the down side, there were few seedling and young plants of the key species encountered. This will likely change with better precipitation patterns. Trend for the herbaceous understory is down dramatically. Sum of nested frequency of perennial grasses and forbs has declined from 992 to only 682 between 1991 and 1994, a 31% decrease. Nested frequency of bottlebrush squirreltail, and needle-and-thread, declined significantly. This change is likely the result of the dry spring (April - June) of 1994 in which only 59% of the normal precipitation was recorded at Boulder (Utah Climate Summaries 2004). Lack of adequate precipitation during the spring severely limits growth of herbaceous vegetation, especially forbs. A return to normal precipitation patterns will reverse this trend.

TREND ASSESSMENT
soil - stable (3)
browse - slightly up (4)
herbaceous understory - down (1)

1998 TREND ASSESSMENT

Trend for soil is up due to an increase in vegetation and litter cover and a decline in rock and bare ground cover. Trend for the key browse species, serviceberry, bitterbrush, and Gambel oak is slightly up due to improved recruitment compared to 1994. Densities are similar and vigor remains good with low decadence. Trend for the herbaceous understory is up slightly. Sum of nested frequency of perennial grasses increased slightly with a significant increase in frequency of bottlebrush squirreltail. Unfortunately, cheatgrass also showed a significant increase in nested frequency, more than doubling from 44 to 99. Cover also increased

from 0.21% cover to 1.6% cover. Sum of nested frequency of forbs remained similar to 1994 estimates. Production of grasses has increased with cover rising from 8% in 1994 to 14% by 1998. Production of forbs has remained similar at 8%.

TREND ASSESSMENT
soil - up (5)
browse - up slightly (4)
herbaceous understory - up slightly (4)

2003 TREND ASSESSMENT

Trend for soil is stable. Cover of vegetation and litter declined slightly but there is less than 2% cover of bare ground and erosion is not a problem. The decline in vegetation and litter cover is due to drought conditions which have suppressed herbaceous production. Trend for browse is stable for the key species, serviceberry, bitterbrush, and Gambel oakbrush. Both serviceberry and bitterbrush have relatively stable populations with good vigor, low decadence, and adequate young recruitment. Serviceberry has been mostly light to moderately browsed while bitterbrush shows mostly heavy use. Gambel oakbrush is the lest preferred key browse species. It also appears stable in average cover and strip frequency while density of stems/acre has increased steadily since 1994. Oak is mostly unutilized with the exception of some moderate use along trails. Trend for the herbaceous understory is down due to the effects of drought. Sum of nested frequency of perennial grasses has declined 35% since 1998, with significant drops in the nested frequencies of bottlebrush squirreltail and *Carex*. Cover of perennial grasses declined 56% from 12% to 5%. Sum of nested frequency of perennial forbs declined 34% but only 3 species, Louisiana sage, Lewis flax, and stoneseed declined significantly. Perennial forb cover declined by 40% from 8% to 5%.

TREND ASSESSMENT
soil - stable (3)
browse - stable (3)
herbaceous understory - down (1)

HERBACEOUS TRENDS --
Management unit 25C, Study no: 13

Type	Species	Nested Frequency					Average Cover %		
		'87	'91	'94	'98	'03	'94	'98	'03
G	Agropyron cristatum	5	5	10	8	15	.19	.10	.22
G	Agropyron intermedium	$_{b}$13	$_{ab}$11	$_{a}$-	$_{a}$-	$_{ab}$3	-	.01	.03
G	Agropyron spicatum	-	-	-	-	4	-	-	.06
G	Bouteloua gracilis	$_{ab}$61	$_{b}$87	$_{ab}$52	$_{a}$44	$_{ab}$51	1.44	2.10	1.42
G	Bromus inermis	$_{a}$22	$_{ab}$21	$_{bc}$41	$_{c}$50	$_{c}$44	1.94	2.13	1.27
G	Bromus tectorum (a)	-	-	44	99	214	.21	1.58	4.48
G	Carex spp.	$_{ab}$33	$_{ab}$36	$_{b}$46	$_{b}$37	$_{a}$12	1.78	1.64	.36
G	Poa fendleriana	7	23	19	16	10	.18	.26	.13
G	Sitanion hystrix	$_{b}$120	$_{b}$101	$_{a}$63	$_{b}$122	$_{a}$40	.44	1.89	.39
G	Stipa comata	$_{b}$183	$_{b}$154	$_{a}$75	$_{a}$96	$_{a}$62	1.62	4.06	1.43
Total for Annual Grasses		0	0	44	99	214	0.20	1.58	4.48

Type	Species	Nested Frequency					Average Cover %		
		'87	'91	'94	'98	'03	'94	'98	'03
Total for Perennial Grasses		444	438	306	373	241	7.61	12.21	5.34
Total for Grasses		444	438	350	472	455	7.82	13.79	9.82
F	Alyssum alyssoides (a)	-	-	$_{a}$-	$_{a}$3	$_{b}$9	-	.00	.04
F	Allium cernuum	8	6	3	3	-	.03	.03	-
F	Antennaria rosea	-	-	-	-	2	-	-	.00
F	Arabis spp.	-	4	6	-	-	.02	-	-
F	Artemisia ludoviciana	$_{c}$221	$_{bc}$192	$_{b}$149	$_{b}$149	$_{a}$63	3.98	4.15	1.74
F	Aster chilensis	-	-	-	-	4	-	-	.04
F	Astragalus desperatus	3	6	-	-	-	-	-	-
F	Aster spp.	-	-	-	3	-	-	.03	-
F	Astragalus spp.	-	1	-	4	-	-	.04	-
F	Chaenactis douglasii	-	1	3	5	1	.15	.18	.00
F	Cirsium undulatum	3	3	-	6	4	-	.01	.06
F	Comandra pallida	27	35	31	16	32	1.50	.80	1.03
F	Crepis acuminata	2	5	8	5	4	.05	.09	.03
F	Cruciferae	8	-	-	-	-	-	-	-
F	Cryptantha spp.	12	3	1	3	4	.00	.03	.15
F	Dalea searlsiae	2	2	-	-	-	-	-	-
F	Draba spp. (a)	-	8	-	-	-	-	-	-
F	Eriogonum alatum	3	1	2	-	-	.03	-	-
F	Erigeron flagellaris	-	-	-	-	-	-	.00	-
F	Erigeron spp.	$_{a}$-	$_{b}$8	$_{b}$10	$_{ab}$7	$_{ab}$1	.57	.01	.00
F	Eriogonum racemosum	$_{b}$196	$_{b}$191	$_{a}$56	$_{a}$78	$_{a}$66	.30	.62	.50
F	Eriogonum umbellatum	$_{a}$-	$_{ab}$4	$_{b}$12	$_{b}$12	$_{b}$18	.05	.30	.25
F	Gayophytum ramosissimum(a)	-	-	$_{b}$8	$_{a}$-	$_{a}$-	.40	-	-
F	Hymenoxys acaulis	2	2	1	3	3	.03	.03	.15
F	Hymenopappus filifolius	9	10	3	4	13	.03	.16	.11
F	Lappula occidentalis (a)	-	-	3	5	5	.00	.03	.15
F	Linum lewisii	$_{b}$16	$_{b}$19	$_{ab}$15	$_{ab}$7	$_{a}$3	.05	.01	.01
F	Lithospermum ruderale	$_{ab}$5	$_{bc}$8	$_{ab}$3	$_{c}$26	$_{a}$-	.18	.87	-
F	Lotus utahensis	3	3	-	-	-	-	.03	-
F	Lygodesmia spinosa	2	3	5	6	7	.30	.09	.21
F	Oenothera caespitosa	-	1	-	-	-	-	-	-
F	Oenothera pallida	-	-	-	5	-	-	.06	-
F	Orthocarpus purpureo-albus(a)	-	-	4	-	-	.03	-	-
F	Penstemon comarrhenus	$_{c}$25	$_{bc}$18	$_{c}$29	$_{a}$1	$_{ab}$5	.32	.03	.01
F	Phlox longifolia	$_{c}$59	$_{ab}$23	$_{abc}$33	$_{bc}$42	$_{a}$21	.15	.22	.17

Type	Species	Nested Frequency					Average Cover %		
		'87	'91	'94	'98	'03	'94	'98	'03
F	Stellaria jamesiana	-	-	-	1	6	-	.00	.04
F	Tragopogon dubius	$_{b}$14	$_{a}$1	$_{a}$-	$_{a}$3	$_{a}$-	-	.06	-
F	Unknown forb-perennial	12	-	6	-	-	.06	-	-
F	Viguiera multiflora	-	4	-	-	-	-	-	-
Total for Annual Forbs		0	8	15	8	14	0.43	0.03	0.20
Total for Perennial Forbs		632	554	376	389	257	7.84	7.90	4.55
Total for Forbs		632	562	391	397	271	8.28	7.94	4.75

Values with different subscript letters are significantly different at alpha = 0.10

BROWSE TRENDS --
Management unit 25C, Study no: 13

Type	Species	Strip Frequency			Average Cover %		
		'94	'98	'03	'94	'98	'03
B	Amelanchier utahensis	24	29	22	7.48	6.51	8.53
B	Artemisia nova	2	3	9	.04	.15	1.08
B	Artemisia tridentata vaseyana	0	0	0	.03	-	-
B	Chrysothamnus depressus	8	3	5	.19	.15	.33
B	Chrysothamnus viscidiflorus viscidiflorus	0	1	2	-	.00	.15
B	Coryphantha vivipara arizonica	0	0	2	.00	-	.03
B	Eriogonum microthecum	3	6	6	-	.03	.24
B	Gutierrezia sarothrae	11	8	13	.03	.04	.18
B	Mahonia repens	2	2	3	.06	.06	.03
B	Opuntia spp.	4	6	8	.03	.06	.21
B	Pinus edulis	0	1	1	-	.85	.38
B	Purshia tridentata	17	21	24	2.30	3.29	3.72
B	Quercus gambelii	36	51	53	20.68	18.57	20.18
B	Symphoricarpos oreophilus	3	3	4	.38	.33	.33
B	Tetradymia canescens	0	2	4	-	.03	.06
Total for Browse		110	136	156	31.25	30.12	35.47

CANOPY COVER, LINE INTERCEPT --
Management unit 25C, Study no: 13

Species	Percent Cover '03
Amelanchier utahensis	9.53
Artemisia nova	.50
Eriogonum microthecum	.08
Gutierrezia sarothrae	.23
Opuntia spp.	.30
Pinus edulis	.56
Purshia tridentata	2.90
Quercus gambelii	28.41
Symphoricarpos oreophilus	.20

KEY BROWSE ANNUAL LEADER GROWTH --
Management unit 25C, Study no: 13

Species	Average leader growth (in) '03
Amelanchier utahensis	1.2
Purshia tridentata	2.5

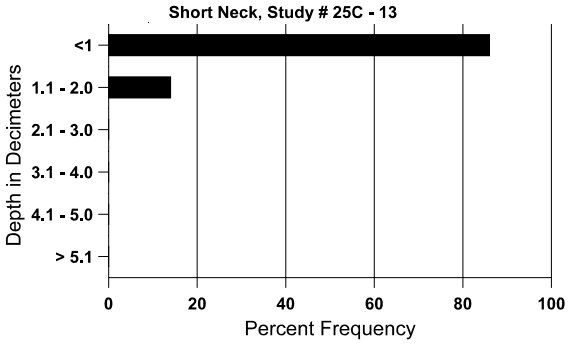
BASIC COVER --
Management unit 25C, Study no: 13

Cover Type	Average Cover %				
	'87	'91	'94	'98	'03
Vegetation	4.75	8.25	43.62	55.77	47.02
Rock	40.50	45.75	35.59	27.93	31.74
Pavement	8.25	6.50	1.00	2.05	.67
Litter	42.25	35.25	47.81	54.97	49.41
Cryptogams	0	.25	.03	.08	0
Bare Ground	4.25	4.00	5.95	1.04	1.40

SOIL ANALYSIS DATA --
Management unit 25C, Study no: 13, Study Name: Short Neck

Effective rooting depth (in)	Temp °F (depth)	pH	%sand	%silt	%clay	%0M	PPM P	PPM K	ds/m
9.5	67.3 (7.9)	5.7	54.0	28.2	17.8	4.5	18.4	137.6	0.4

Stoniness Index



PELLET GROUP DATA --
Management unit 25C, Study no: 13

Type	Quadrat Frequency		
	'94	'98	'03
Rabbit	12	1	2
Cow	-	-	-
Elk	13	16	14
Deer	6	3	5

Days use per acre (ha)	
'98	'03
-	-
6 (15)	3 (7)
52 (128)	45 (111)
14 (35)	3 (7)

BROWSE CHARACTERISTICS --
Management unit 25C, Study no: 13

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Amelanchier utahensis											
87	**2133**	66	1333	800	-	-	16	66	0	0	36/17
91	**1733**	-	133	1600	-	-	96	0	0	0	34/27
94	**1140**	-	20	1100	20	-	18	0	2	4	42/40
98	**1440**	40	260	1100	80	80	36	0	6	1	42/39
03	**1020**	-	180	800	40	20	37	4	4	0	50/58
Artemisia nova											
87	**0**	-	-	-	-	-	0	0	-	0	-/-
91	**0**	-	-	-	-	-	0	0	-	0	-/-
94	**60**	-	-	60	-	-	0	0	-	0	9/22
98	**160**	-	40	120	-	80	25	0	-	0	13/21
03	**360**	-	20	340	-	-	0	0	-	0	13/21

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Ceanothus martinii											
87	**66**	-	-	66	-	-	0	0	-	0	14/31
91	**0**	-	-	-	-	-	0	0	-	0	-/-
94	**0**	-	-	-	-	-	0	0	-	0	-/-
98	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	-/-
Chrysothamnus depressus											
87	**0**	-	-	-	-	-	0	0	0	0	-/-
91	**0**	-	-	-	-	-	0	0	0	0	-/-
94	**300**	-	40	260	-	-	53	7	0	0	14/12
98	**160**	-	-	160	-	-	0	0	0	0	8/15
03	**360**	-	-	260	100	-	100	0	28	0	5/10
Chrysothamnus viscidiflorus viscidiflorus											
87	**0**	-	-	-	-	-	0	0	0	0	-/-
91	**0**	-	-	-	-	-	0	0	0	0	-/-
94	**0**	-	-	-	-	-	0	0	0	0	-/-
98	**20**	-	-	-	20	-	0	0	100	0	8/6
03	**80**	-	20	60	-	-	0	0	0	0	8/10
Coryphantha vivipara arizonica											
87	**0**	-	-	-	-	-	0	0	-	0	-/-
91	**0**	-	-	-	-	-	0	0	-	0	-/-
94	**0**	-	-	-	-	-	0	0	-	0	-/-
98	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**40**	-	-	40	-	-	0	0	-	0	2/5
Eriogonum microthecum											
87	**0**	-	-	-	-	-	0	0	0	0	-/-
91	**199**	-	-	66	133	-	0	0	67	67	9/10
94	**140**	-	-	140	-	-	100	0	0	0	9/11
98	**280**	-	20	260	-	-	14	0	0	0	7/11
03	**260**	-	-	260	-	-	38	54	0	0	6/10
Gutierrezia sarothrae											
87	**332**	-	66	266	-	-	0	0	-	0	11/7
91	**200**	-	-	200	-	-	33	0	-	0	6/4
94	**220**	-	20	200	-	-	0	0	-	0	7/7
98	**300**	80	100	200	-	-	0	0	-	0	6/7
03	**440**	-	-	440	-	-	0	0	-	0	7/8

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Mahonia repens											
87	**0**	-	-	-	-	-	0	0	-	0	-/-
91	**0**	-	-	-	-	-	0	0	-	0	-/-
94	**300**	-	-	300	-	-	0	0	-	0	3/2
98	**300**	20	-	300	-	-	0	0	-	0	2/3
03	**260**	-	-	260	-	-	0	0	-	0	3/4
Opuntia spp.											
87	**0**	-	-	-	-	-	0	0	-	0	-/-
91	**0**	-	-	-	-	-	0	0	-	0	-/-
94	**120**	-	-	120	-	-	0	0	-	0	2/5
98	**440**	40	-	440	-	40	0	0	-	0	3/6
03	**520**	20	20	500	-	-	0	0	-	0	4/12
Pinus edulis											
87	**0**	-	-	-	-	-	0	0	-	0	-/-
91	**0**	66	-	-	-	-	0	0	-	0	-/-
94	**0**	-	-	-	-	-	0	0	-	0	-/-
98	**20**	20	20	-	-	-	0	0	-	0	-/-
03	**20**	-	20	-	-	-	0	0	-	0	-/-
Pinus ponderosa											
87	**66**	-	-	66	-	-	0	0	-	0	393/236
91	**66**	-	-	66	-	-	0	0	-	0	-/-
94	**0**	-	-	-	-	-	0	0	-	0	-/-
98	**0**	-	-	-	-	-	0	0	-	0	-/-
03	**0**	-	-	-	-	-	0	0	-	0	-/-
Purshia tridentata											
87	**466**	-	200	266	-	-	43	0	0	0	16/22
91	**932**	66	466	333	133	-	43	36	14	0	15/35
94	**620**	-	60	520	40	-	65	0	6	6	29/63
98	**660**	20	120	480	60	-	27	0	9	0	18/39
03	**720**	-	80	500	140	-	42	53	19	6	16/37
Quercus gambelii											
87	**3866**	600	800	3066	-	-	0	0	0	22	45/28
91	**6265**	1733	4133	666	1466	-	54	2	23	15	48/22
94	**4000**	-	400	3440	160	40	80	0	4	0	40/32
98	**7160**	880	2560	4080	520	380	8	0	7	.83	45/27
03	**9300**	-	1600	7060	640	700	8	0	7	.21	36/26

		Age class distribution (plants per acre)					Utilization				
Year	Plants per Acre (excluding seedlings)	Seedling	Young	Mature	Decadent	Dead	% moderate	% heavy	% decadent	% poor vigor	Average Height Crown (in)
Symphoricarpos oreophilus											
87	**0**	-	-	-	-	-	0	0	-	0	-/-
91	**66**	-	66	-	-	-	0	100	-	0	-/-
94	**120**	-	20	100	-	-	0	0	-	17	10/25
98	**100**	-	-	100	-	-	40	0	-	0	13/33
03	**100**	-	-	100	-	-	0	0	-	0	16/30
Tetradymia canescens											
87	**0**	-	-	-	-	-	0	0	-	0	-/-
91	**0**	-	-	-	-	-	0	0	-	0	-/-
94	**0**	-	-	-	-	-	0	0	-	0	8/14
98	**60**	-	20	40	-	-	33	0	-	0	10/18
03	**80**	-	60	20	-	-	0	0	-	0	8/13